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CORPS WORK FORCE MOBILITY.(U)
AUG 79 J M DAVIS

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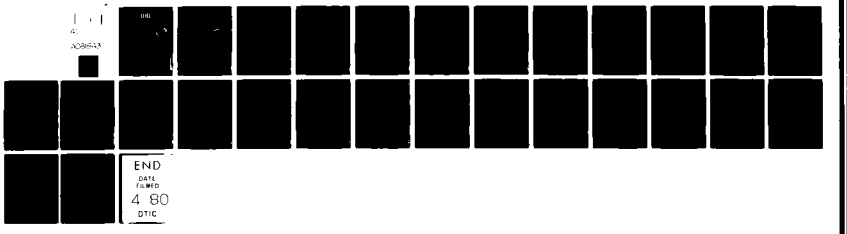

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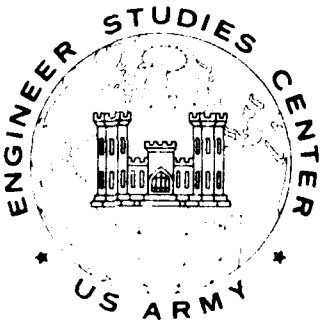
CORPS WORK FORCE MOBILITY



Prepared by

US Army Engineer Studies Center

Corps of Engineers

August 1979

20. Abstract continued

only as they can be quantified based on actual moves. Mobility was also found to vary significantly by geographic location/Corps divisions. The issue of relocation to Washington, DC receives particular attention. Expressed mobility (as stated on career program forms) was compared to actual mobility and revealed a close correlation. The conclusion is that the work force is more mobile than had been anticipated, but that this situation may not prevail under pressures of inflation.

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Prepared by
US Army Engineer Studies Center
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August 1979

Principal Author: Ms. Jill M. Davis

CONTENTS

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Also, this study would not have been possible without the cooperation of Civilian Personnel Office employees throughout the Corps who carefully scanned randomly selected 201 files, filled out data sheets, and submitted them to ESC. The timeliness and accuracy were remarkable.

CORPS WORK FORCE MOBILITY

1. Introduction.

a. At the Fall 1977 Division Engineers' (DE) Conference, Task Group IV was assigned to study the "Quality of the Work Force." In addition to other recommendations, the Task Group reported the need for a short study on mobility within the Corps of Engineers. Subsequently, the mobility issue was appended to the Engineer Studies Center's (ESC) "Future CE Work Force Needs" project. The issue was studied concurrently with the task of developing a profile of the Corps work force. It is isolated for publication in this manner because it is a narrow topic which lends itself readily to presentation as a separate monograph.

b. Corps managers have lately stated their beliefs that the increasing immobility of the work force is significantly impairing their ability to manage effectively. They believe that it is becoming increasingly difficult to induce top performers to relocate to areas where their skills are needed. They are particularly concerned over the Corps' lack of success at getting executive-level workers to move to Headquarters, OCE, in Washington, D.C. This monograph assesses the mobility issue and quantitatively describes several ways in which the Corps is not as immobile as had been feared. In fact, the research shows that the upper level managers are the most mobile of the Corps' employees. It essentially counteracts the fears of those who would decline new missions/projects based on their perception that the work force is too immobile to get the workers on line in time.

2. How Mobile Are Corps Employees?

a. ESC approached this question by assuming that past behavior of Corps personnel who are still in the work force reflects the mobility of the current and future work forces. Because employee 201 files are probably the most accurate source of relevant data, ESC arranged to have the various Civilian Personnel Offices around the country select at random an array of 201 files and transfer mobility data (among other data) from these 638 records. Throughout the data-gathering phase, the information was handled free of individual's names, since grade was the only relevant category. The sample was structured so that inferences among grade levels are statistically significant at the 95 percent level of confidence.

b. ESC considered mobility an employee's evidenced willingness to take another position in an office not collocated with the current job site; the two subsets of mobility data recorded were number of moves within commuter distance (50 miles or less) and number of moves over 50 miles. Despite this data-gathering distinction, true mobility is considered to be reflected by the number of moves over 50 miles during one's career. Although the data sheets completed by the Civilian Personnel Office employees contained cells for recording whether moves were of commuter distance or over, the overall mobility totals reflected in this report include both types of moves. Evaluation of the data yielded the results shown in Figure 1. Care must be exercised in interpreting the

data shown in Figure 1 since the data reflect the total number of moves during each sampled employee's career and time at present grade is not shown. The figure reflects, for example, that for a GS-13 selected at random, there is a 61 percent chance that the employee will have moved at least once during his career and that if at least one move did occur, the expected number of career moves is 2.77. (The average number of career moves for all GS-13 employees sampled would be 1.69.)

CAREER MOBILITY
(Based on 638 Sampled Careers)

	GS Grade							
	11	12	13	14	15	16	17	ST[a/]
No. In Sample	119	133	141	112	89	38	4	2
Percent With Moves	45	54	61	68	73	81	100	50
Avg No. of Moves[b/]	2.24	2.69	2.77	2.75	2.60	2.73	3.25	5

Overall Mobility: 61 Percent (56 percent with at least one move over 50 miles)

Overall Avg No. of Moves:[b/] 2.65

a/ ST employees are supergrade employees whose salary is set by Congress in accordance with Public Law 313.
b/ Average number of moves per employee that moved.

Figure 1

c. The data collected illustrate that the upper level Corps employees are indeed mobile. Almost all GS-16 and GS-17 employees have

recorded moves during their careers, and the number of moves during the average GS-17's career is significantly higher than for lower grade employees regardless of their length of service. Also, it is noteworthy that the percent of employees with at least one move increases steadily as the grade level increases. The average number of moves, however, follows a more uneven path in the grades GS-13 through GS-16. The major explanation for this apparent anomoly is increased entry grades for the higher GS levels. That is, although an increasing number of these late entries had at least one move, they had fewer total moves during their Corps careers and thus lowered the averages. Those moves at the GS-15 through GS-17 levels are also probably closely related to supergrade promotion opportunities and opportunities to relocate to desired retirement locations.

d. The knotty question that arises next is: How mobile should Corps employees be? Should employees at various levels have experienced a certain number of moves in reaching their current status? Although such standards could be set and used as guidelines for career development, it seems that this would prove an unnecessary record-keeping and enforcement problem. Most of all, it would be of questionable value. It appears that the Corps has been able to find employees willing to work in Europe and the Middle East. Until there is a change in the environment which precludes the Corps from finding people willing to meet new foreign and domestic challenges, it would seem unnecessary to

set such standards. ESC, therefore, did not address and does not indorse setting such Corps-wide goals.

3. Why Do Corps Employees Move? There are many possible incentives to relocate, and all of these should be considered. Some people will move just to get experience and preferential credentials for future promotions. Some will move only for travel opportunities. Some actually wish to work on particularly challenging and perhaps regionally handled problems. Some move just to get away from where they are. These reasons will be discussed separately as they relate to management significance or interest.

a. Lateral moves--those that do not involve a change in grade level--are much more widespread than one might have guessed. Such moves were considered to be prompted by a developmental motive. Figure 2 compares the number of moves for developmental motives with the number of moves for promotions. These results from the 638 career profiles seem to indicate that professionals in the Corps are generally operating under the presumption that a certain mobility early in their careers will qualify them for promotions later. If those promotions are not forthcoming at the rate anticipated, they generally become immobile at a plateau grade. The crossover point for motives (as shown on Figure 2) is at the GS-13 level--the point where the first big management cut is made, the largest plateau grade. Moves for promotion dominate at the GS-13 through GS-17 levels. The number of development-motivated moves

MOTIVATION FOR EMPLOYEE MOBILITY
(1,027 Moves)

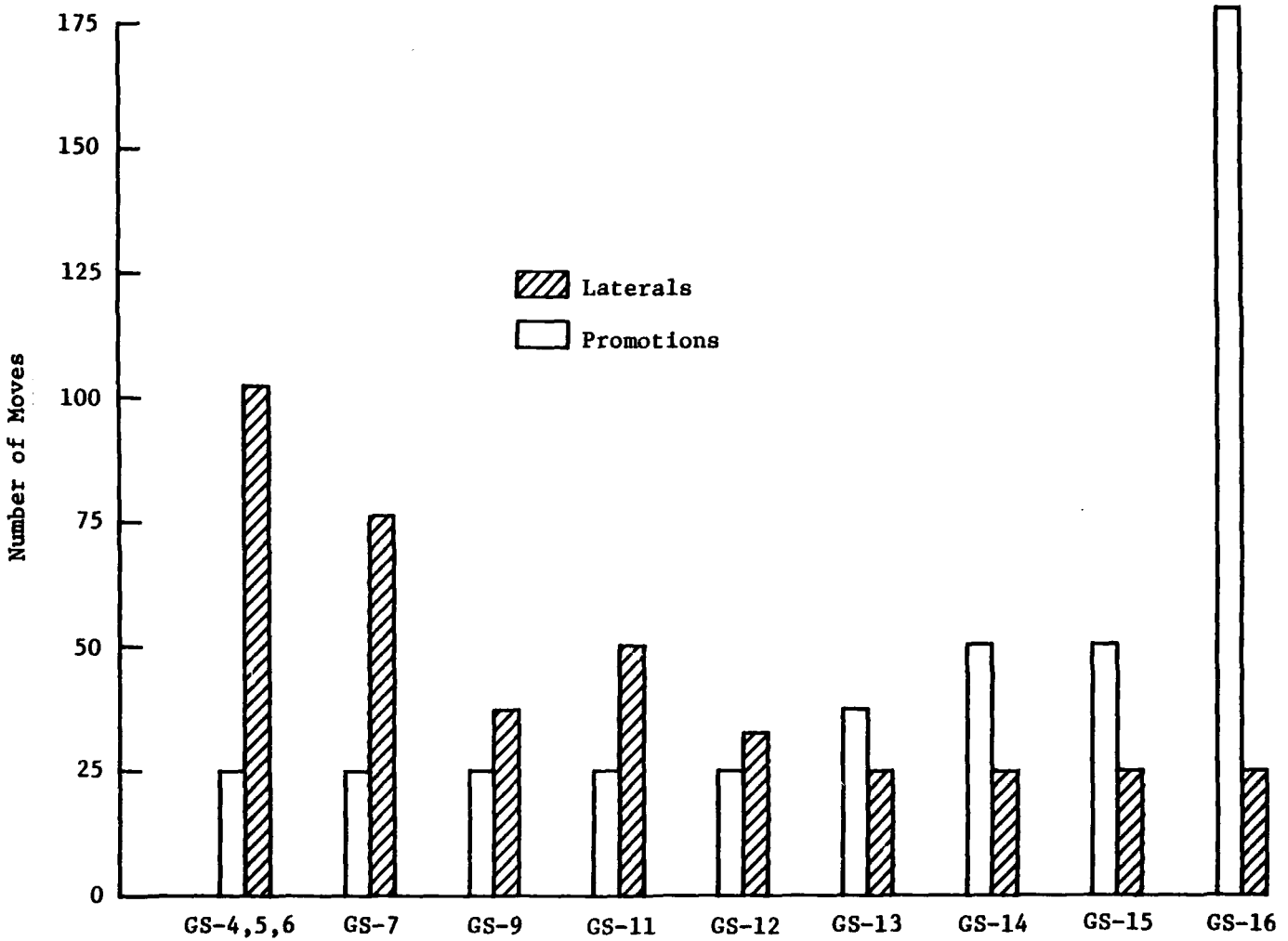


Figure 2

was quite small in relation to promotion-motivated moves in all of the higher grades.

b. The careers of the 638 randomly selected Corps employees revealed, as might have been anticipated, that there are some gypsies among us who will even take a change to lower grade in order to travel in a particular part of the world. Although this number was quite small (5 percent), the travel motive cannot be discounted when it comes to staffing to handle a specific new foreign mission.

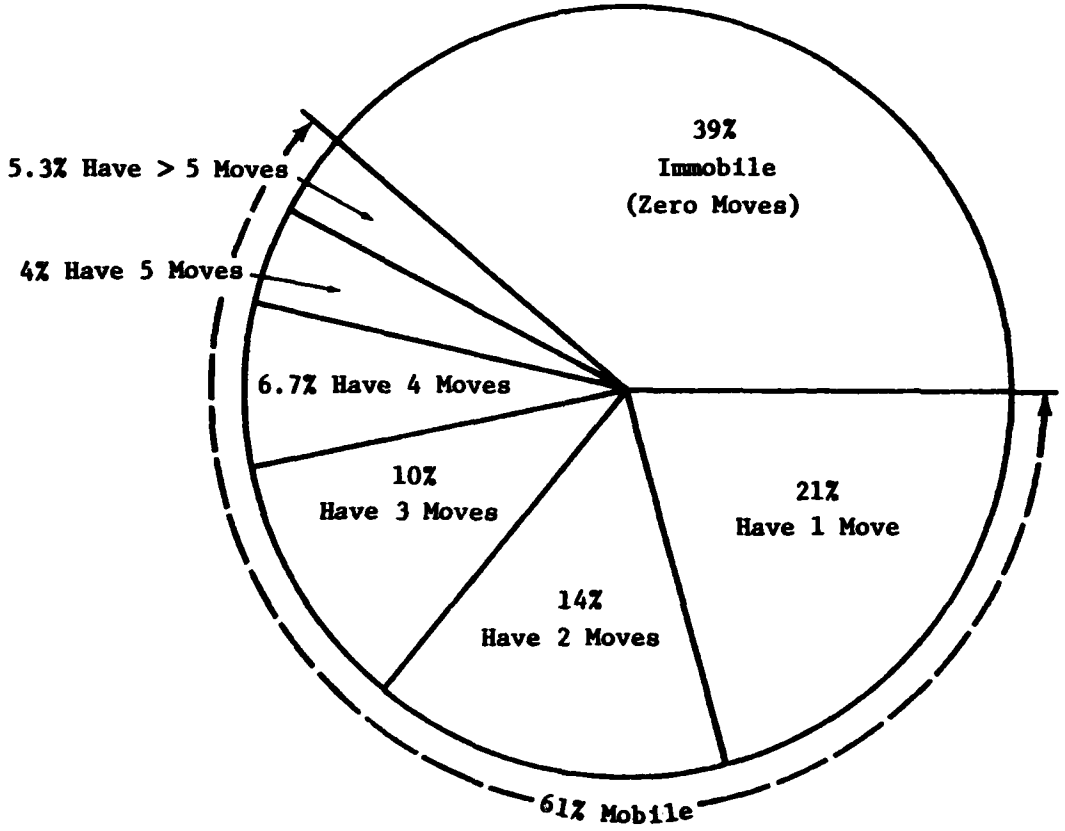
c. The American sense of adventure and pioneering spirit may not be as evident today as they once were, but one cannot discount their existence--particularly among young interns and journeyman professional employees. The enthusiasm many young professionals exhibit in pursuing assignments to exotic regions such as Saudi Arabia and Israel is proof of this factor's impact as a motive for relocating. The inherently satisfying nature of engineering work--a visible, structural solution--still has great appeal to many in today's labor force.

4. <u>When Do Corps Employees Move?</u> It was assumed that if there was a pattern which related frequency of moves to stages or grade levels in professional Corps careers, Corps management could gain some leverage in recruitment policies and in preparing job sheets for vacancies. Indeed, the Corps would gain if it could get even the slightest insight into the grade levels at which employees can be induced to pick up their families and move to other locations.

a. The data revealed a high correlation between mobility and advancement in the Corps. For example, it can be seen from Figure 1 that 100 percent of GS-17s have had at least one move during their careers, whereas only 61 percent of GS-13s have had one or more moves. This finding is reinforced by Figure 3 which reflects the distribution of the sampled careers by number of moves. Figure 3 shows that the average number of moves is not artificially skewed by a few employees.

b. The sampled careers were further examined to determine at what grade levels employees moved. These totals were refined to exclude moves by personnel within grades they currently hold because they have not yet exhausted their potential for contributing moves at those grade levels. The refined set of moves at grades completed was then plotted as a normalized curve which adjusts for the variations in sample sizes over the various grades (see Figure 4). It is important to note the difference between Figure 4 and Figure 1 with respect to average number of moves per employee. If one sums the frequencies from left to right in Figure 4 to obtain career moves per employee, the numbers will be uniformly greater at all grade levels than those in Figure 1 because moves at current grade were included in Figure 1 which lowered the averages. The plots in Figure 4 reflect a surprising mobility at GS-5 through GS-12 levels and a decrease in mobility at the GS-13 level where the managerial cut often occurs. The level of mobility is unremarkable thereafter until the grade GS-16 is reached which appears dominated by

FREQUENCY OF MOVES
(Based on 638 Sampled Careers)



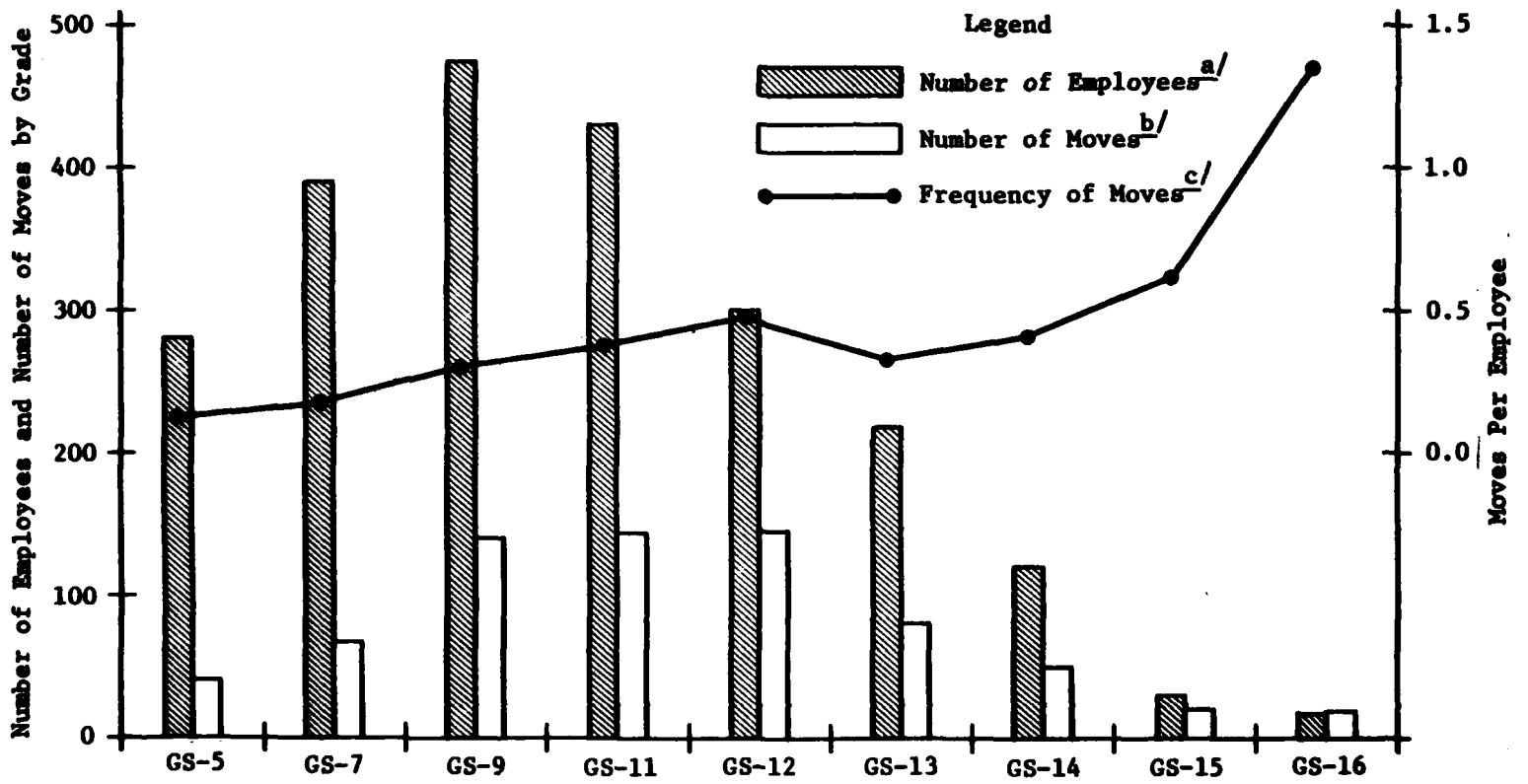
(Have At Least One Move)

Figure 3

EMPLOYEE MOBILITY BY GRADE

(Based on 638 Sampled Careers)

56% Have At Least One Move Over 50 Miles



a/ Number of employees is the number that have completed the grade and could have influenced the number of moves.

b/ Some employees moved more than once at a grade; some moved at several different grades. Includes all moves, within and beyond the 50-mile commuter distance.

c/ Frequency of moves equals number of moves divided by number of employees (read right).

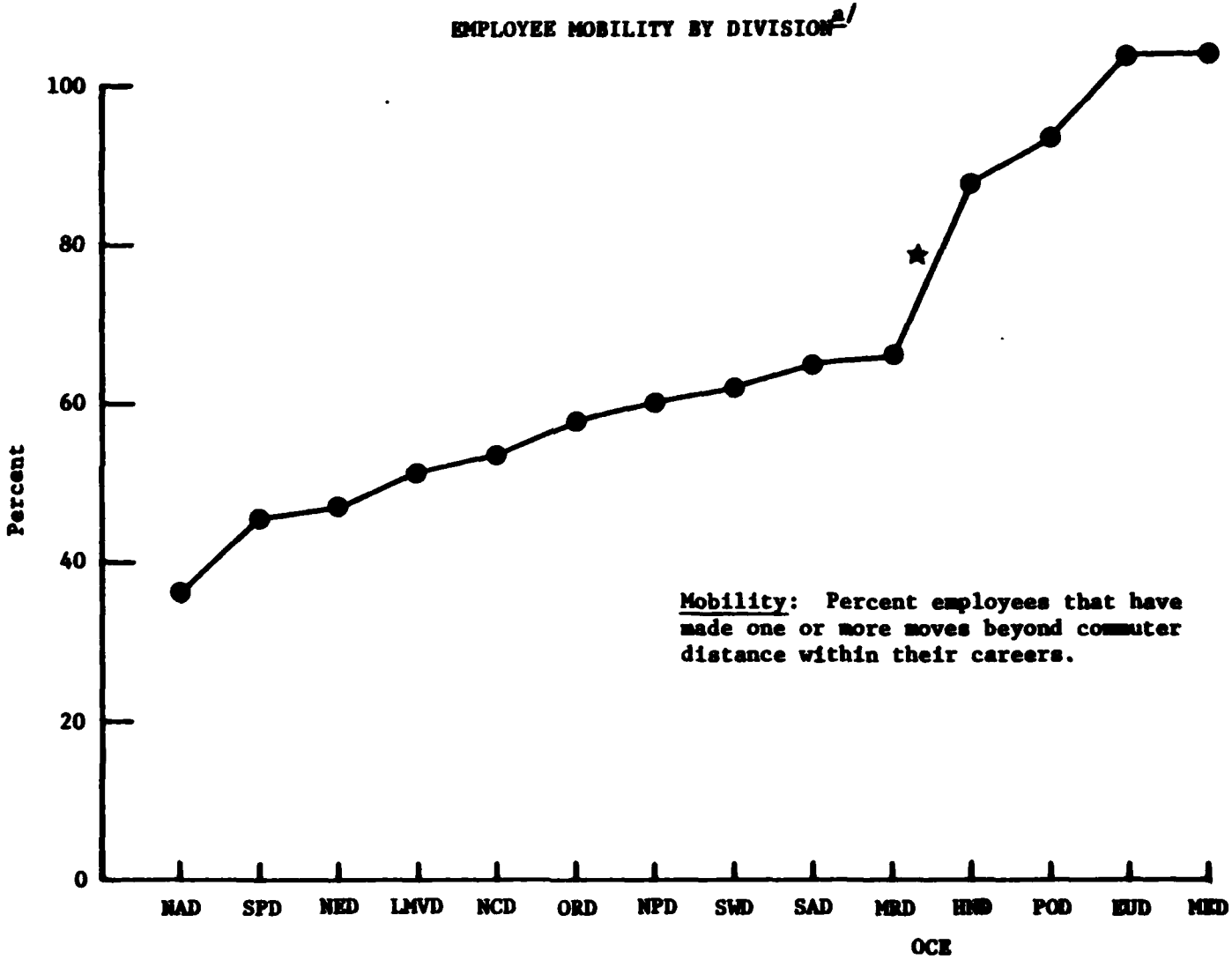
Figure 4

highly mobile individuals. Although the data for grades GS-16 and greater are all-inclusive, the sample size is quite small for those grades.

5. What Influence Does Locale Have On Mobility? The careers analyzed were randomly sampled from individuals in grades GS-11 through GS-17. Therefore, the data base was designed to reflect grade-level distinctions and did not aim at discerning division/district characteristics. Once the data were collected and sorted, however, it became apparent that there were possibly some significant variations in behavior patterns which were regional and which should be identified. On re-examination, it was found that the sample sizes for several divisions were large enough to allow some conclusions to be made with a relatively high degree of reliability. The reliability, however, is significantly less than the 95 percent confidence level designed into the selection of data for analysis on a grade-by-grade basis.

a. When the mobility data are arrayed by divisions (see Figure 5), they not surprisingly highlight the inherent mobility of MED, EUD, POD, and HND. They also verify the widespread impression that the work forces of NED and NAD are comparatively immobile.

b. Several Corps executives have also expressed concern over their inability to induce highly qualified employees to accept responsible positions at OCE in Washington, D.C. Figure 6 arrays the sample data received only for OCE employees. Contrary to expressed beliefs,

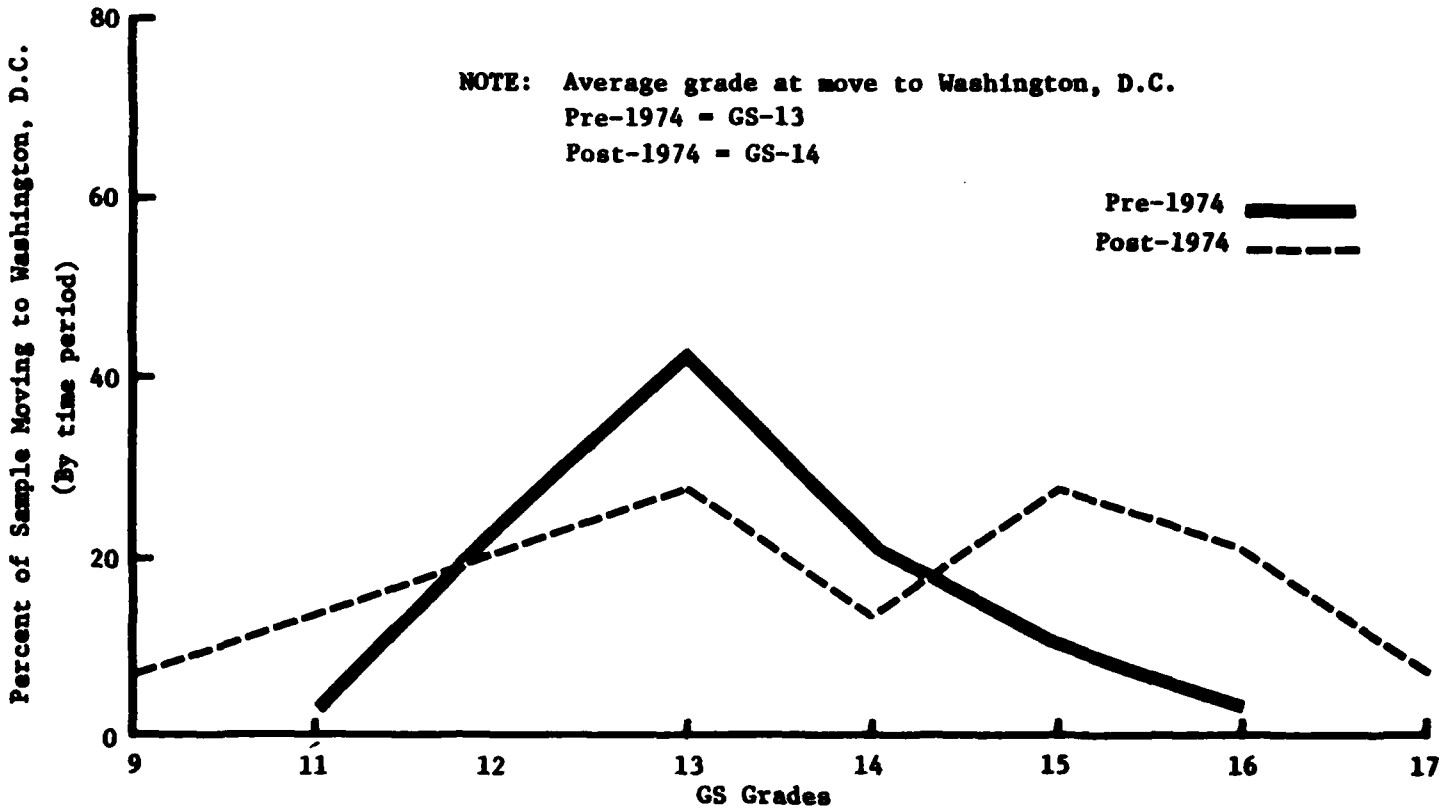


a/ Based on 558 sampled careers. The sampled careers for FOAs and Labs are not shown because sample sizes are too small.

Figure 5

GRADE AT MOVE TO WASHINGTON, D.C.

(Pre-1974 vs Post-1974)[a/]



a/ Based on data from sampled careers rather than the 2302 data.

Figure 6

Figure 6 indicates that OCE employees have been relatively mobile during their careers. The immobility perceived is probably more the result of particular individuals refusing to move to Washington than of any regional characteristic. This is not to say that the Corps can recruit and fill positions readily at all grade levels. The relationship between grade levels and mobility and the possible desirability of regional pay scales or upgrading of key vacancies must be considered. Figure 6 shows the grade at which the sampled OCE employees moved to Washington, D.C. Although the GS-13 level has historically been the modal grade for attracting employees to Washington, recent data for years 1974-1979 indicate a modal shift to the GS-15 level. Also, the average grade when the move occurred has increased from GS-13 to GS-14. Although this indication is soft statistically because of the relatively small sample size and the uneven distribution of the sample over GS grade levels, it still fuels the belief that the high cost of living in D.C. (especially the cost of housing) makes it uneconomical over the short range to relocate for a one-grade advancement. Figure 7 reflects rough values for the cost of a typical relocation to the Washington, D.C. area.

c. A simple count of preferable areas for relocation--as enumerated on the 2302 forms for Engineers and Scientists who are enrolled in the Career Program--indicates that certain areas are more desirable relocation sites than others (see Figure 8). It is not surprising that most of the areas listed are noted for their mild climates

and relaxed life styles and that Washington, D.C. does not rank among the top 10--although it does rank number 13.

COST OF RELOCATING TO WASHINGTON, D.C.

From:	GS-12 (Step 4)	$25,397	
To:	GS-13 (Step 3)	$28,368	
		$ 2,971 Salary Gain	
Costs of Move (Not Paid by Government):			
From:	7 1/2 percent annual home mortgage interest		$3,300/year
To:	11 percent		$9,000/year
		Added interest	$5,700/year
		Less added tax ded	$1,025/year
		Net additional int	$ 4,675/year
Cost of Promotion:	-$1,700 + (other incidental)		

Figure 7

TOP TEN STATED RELOCATION PREFERENCES

California
Florida
Hawaii
Colorado
Oregon
Germany
Washington State
Texas
Virginia
Georgia

Figure 8

6. Real Versus Stated Mobility. As we all know, what people say is one thing and what they do may well be quite another. However, if what they say corresponds to how they behave, then it is relevant to act on their answers to the questions: How mobile are you? Where would you be willing to move for a raise or for developmental opportunity? The 2302 form asks this question of all professionals in the Engineer and Scientists Career Program and records their responses in an automated format. By arraying and evaluating these responses, ESC hoped to translate indicated preferences into expressions of mobility. It was also hoped to measure the value of the 2302 as an indicator of mobility--either for extent of mobility or preferred relocation areas.

a. Individuals indicating one to five acceptable relocation areas were categorized as being immobile. Those citing 6 to 15 sites were considered to have selected mobility, and those indicating over 15 acceptable relocation sites were counted as being mobile. Rearraying the data from the 2302 forms according to these criteria (plus a breakout for overseas mobility) resulted in the totals shown in Figure 9. If the "selected mobility" and "mobile" categories are combined with overseas mobile employees, the total is 63 percent mobile. This total corresponds closely to the 61 percent resulting from the randomly selected 201 file records. These data are further shown in Figure 10 by divisions and in Figure 11 by grade levels. Comparing Figure 10 to Figure 5, it can be seen that the ranking of divisions with respect to stated mobility

ENGINEER AND SCIENTIST CAREER PROGRAM STATED MOBILITY CORPS WIDE

Division/ Activity	No. of Records	Immobl 0-5 (%)	Selected 6-15 (%)	Mobile 16-40 (%)	Anywhere CONUS (%)	Anywhere Overseas (%)	CONUS Or OS[a] (%)
Activities:	312	125 (40.1)	58 (18.6)	66 (21.2)	28 (9.0)	- (0)	35 (11.2)
CRREL:[b]	81	32 (39.5)	20 (24.7)	18 (22.2)	4 (4.9)	1 (1.2)	6 (7.4)
EUD:	139	34 (24.5)	35 (25.2)	37 (26.6)	14 (10.1)	1 (0.7)	18 (12.9)
HND:	122	19 (15.6)	28 (23.0)	28 (23.0)	22 (18.0)	3 (2.5)	22 (18.0)
LMVD:	1,042	426 (40.9)	280 (26.9)	175 (16.8)	71 (6.8)	14 (1.3)	76 (7.3)
MED:	321	27 (8.4)	52 (16.2)	52 (16.2)	17 (5.3)	43 (13.4)	130 (40.5)
MRD:	776	354 (45.6)	152 (19.6)	108 (13.9)	49 (6.3)	59 (7.6)	54 (7.0)
NAD:	832	320 (38.5)	231 (27.8)	141 (16.9)	74 (8.9)	8 (1.0)	58 (7.0)
NCD:	690	253 (36.7)	169 (24.5)	138 (20.0)	64 (9.3)	6 (0.9)	60 (8.7)
NED:	199	91 (45.7)	55 (27.6)	30 (15.1)	12 (6.0)	1 (0.5)	10 (5.0)
NPD:	882	354 (40.1)	249 (28.2)	161 (18.3)	35 (4.0)	18 (2.0)	65 (7.4)
ORD:	827	286 (34.6)	206 (24.9)	165 (20.0)	84 (10.2)	7 (0.8)	79 (9.6)
POD:	98	27 (27.6)	24 (24.5)	20 (20.4)	1 (1.0)	5 (5.1)	21 (21.4)
SAD:	1,163	380 (32.7)	317 (27.3)	246 (21.2)	92 (7.9)	24 (2.1)	104 (8.9)

(Figure 9, Continued on Next Page)

ENGINEER AND SCIENTIST CAREER PROGRAM STATED MOBILITY CORPS WIDE--Continued

Division/ Activity	No. of Records	Immobl 0-5 (%)	Selected 6-15 (%)	Mobile 16-40 (%)	Anywhere CONUS (%)	Anywhere Overseas (%)	CONUS Or OS[a] (%)
SPD:	696	360 (51.7)	167 (24.0)	113 (16.2)	19 (2.7)	13 (1.9)	24 (3.4)
SWD:	1,198	440 (36.7)	331 (27.6)	269 (22.5)	66 (5.5)	22 (1.8)	70 (5.8)
WES:	442	104 (23.5)	112 (25.3)	105 (23.8)	42 (9.5)	8 (1.8)	71 (16.1)
Corps Totals	9,820	3,632 (37.0)	2,486 (25.0)	1,872 (19.0)	694 (7.0)	233 (2.0)	903 (9.0)

a/ Willingness to move anywhere CONUS or overseas.
b/ US Army Cold Regions Research and Engineer Laboratory.

Figure 9

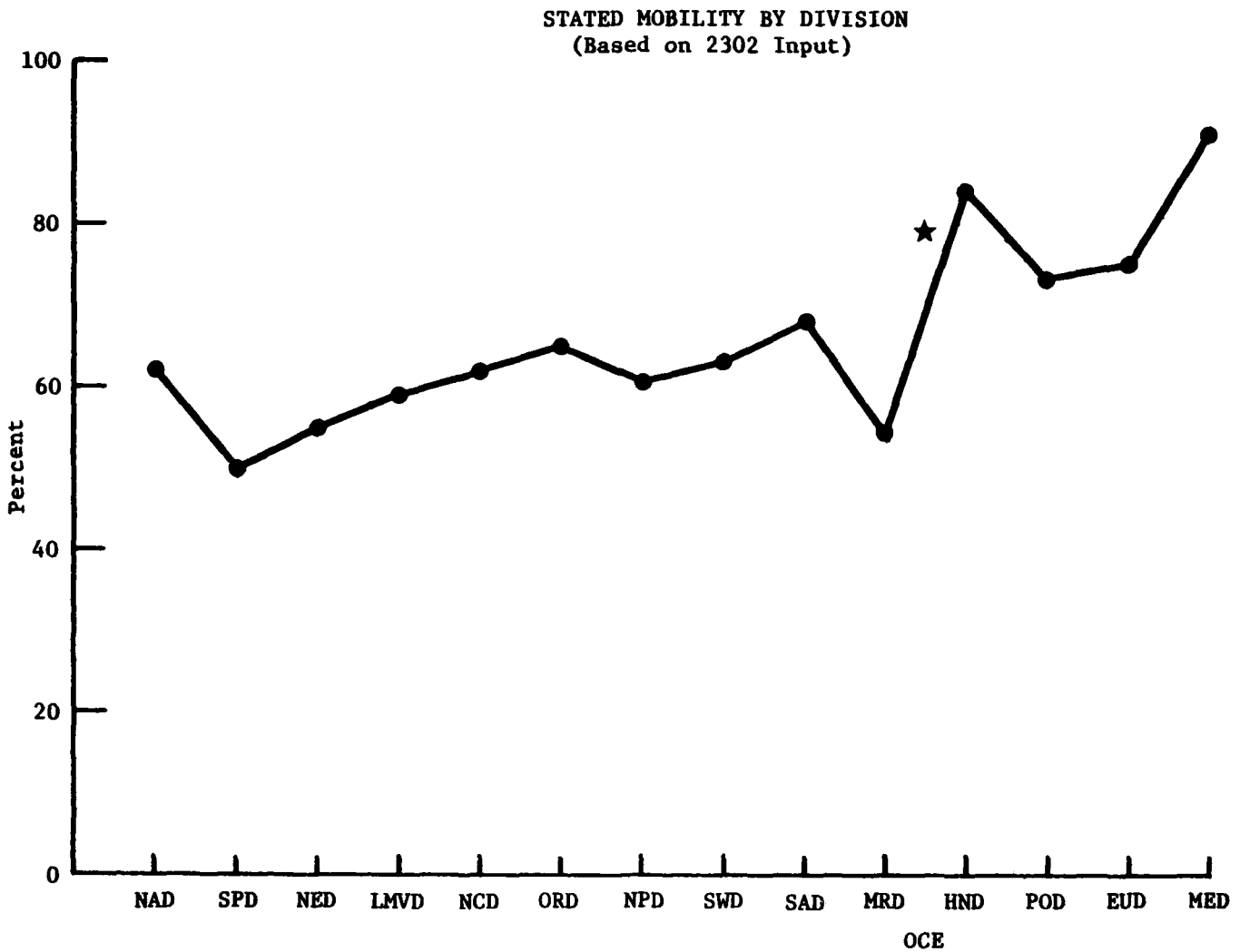

STATED MOBILITY BY DIVISION
(Based on 2302 Input)
100
80
60
40
20
0
Percent
NAD
SPD
NED
LMVD
NCD
ORD
NPD
SWD
SAD
MRD
HND
POD
EUD
MED
OCE

Figure 10

STATED MOBILITY BY GRADE LEVEL
(From 2302 Input)

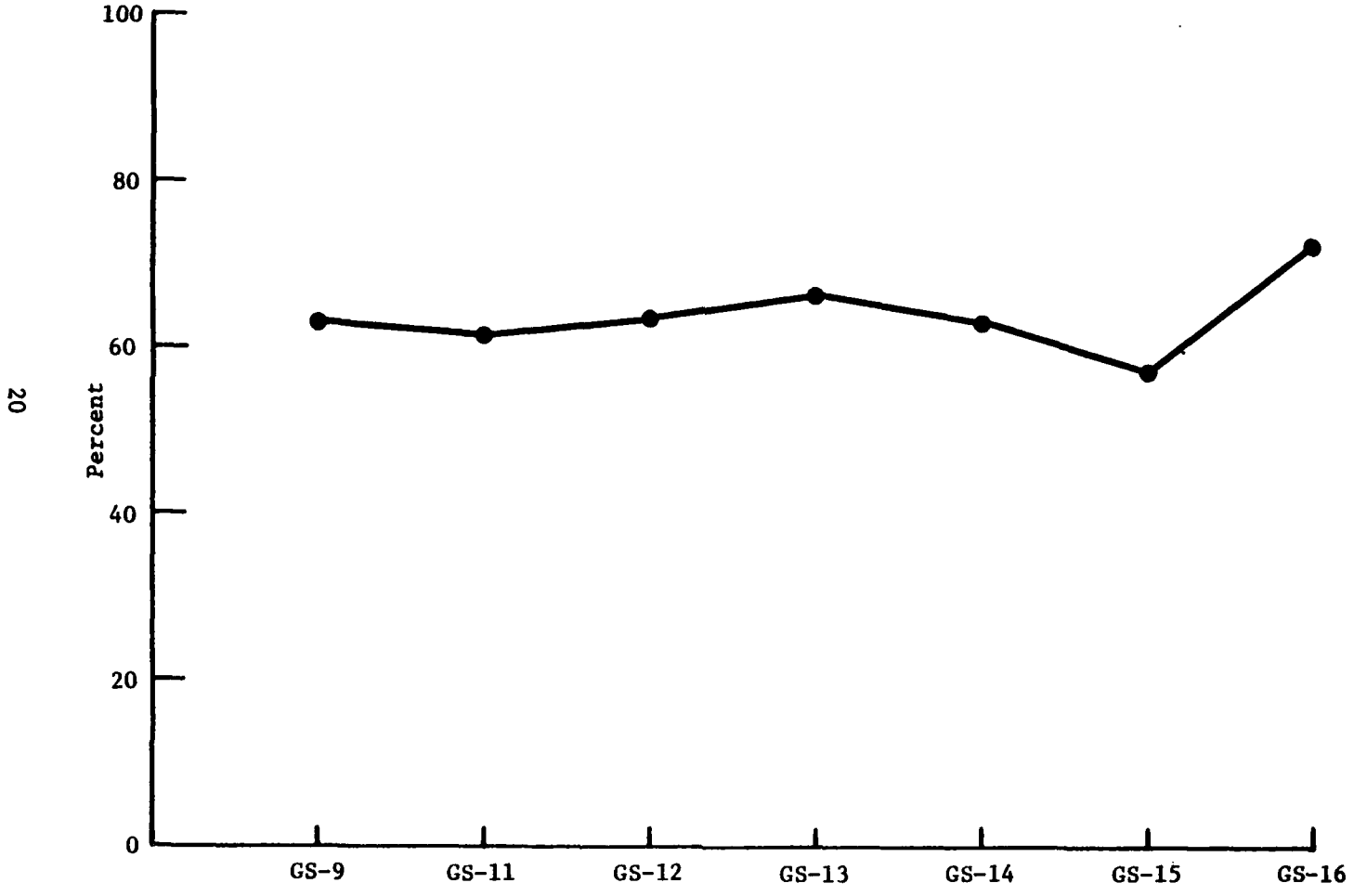


Figure 11

is virtually identical to the ranking based on sampled career moves. Also as shown on Figure 11, the expressed mobility by grade shows little variation over the grade range, but with respect to central tendency corresponds rather closely to the actual Corps-wide mobility data computed from the sampled careers. The increase in expressed mobility at the GS-16 level agrees with the actual increase in mobility at the GS-16 level.

b. It appears, therefore, that substantial consistency exists between stated mobility as expressed on the 2302 forms and actual mobility as derived from sampled career moves. Consequently, the 2302 form would appear to be a reliable indicator of employee mobility.

7. Conclusion. It is essential that the headquarters of any large organization be aware of its key work force characteristics. It is not enough to manage based purely on intuition when actual performance can be measured. If the key to the future is "fast flexibility" as ESC postulated at the outset of of the Work Force Needs project, it is important that management be aware of employee mobility considerations and potential projects requiring that characteristic. Sound management decisions with respect to new directions in particular demand consideration of employee mobility. If the work force is more mobile than impressions would suggest, the Corps may be significantly further along toward accepting new challenges than management has suspected. ESC's research on mobility has indicated that this is, in fact, the case.

The Corps work force is relatively mobile--particularly at the higher grade levels--and employees in certain geographic areas appear more mobile than employees in other geographic areas. This research, therefore, appears to free management of another phantom worry and supports sounder decisions with regard to new projects, career development, and relevant management actions.